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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/048,141	07/15/2002	Ricardo Blach Vizoso	EF377398785US	2737
21003	7590	03/05/2004	EXAMINER	
BAKER & BOTTS 30 ROCKEFELLER PLAZA NEW YORK, NY 10112			ZALUKAEVA, TATYANA	
			ART UNIT	PAPER NUMBER
			1713	

DATE MAILED: 03/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/048,141

Applicant(s)

BLACH VIZOSO, RICARDO

Examiner

Tatyana Zalukaeva

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 July 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 July 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>07/15/2002</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Specification***

1. The abstract of the disclosure is objected to because a) it should be one paragraph with no spaces and no indents. Correction is required. See MPEP § 608.01(b).
2. dibromotetrafluoroethylene is misspelled on page 3, line 10.
3. Applicant deleted several inventors from the inventorship, however, the instant specification recites "Investigations carried out by the authors of the invention show that the degree...", page 6 and "synthesized by the authors" , page 8. Correction is required.
4. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Spain on 07/22/1999. It is noted, however, that applicant has not filed a certified copy of the application as required by 35 U.S.C. 119(b).
5. There is no "Drawing description" section in Specification. Correction is required

### ***Claim Objections***

6. Claims 1-11 are objected to because of the following informalities:
  - EM in claim 1 should be first identified, and only then abbreviated
  - "copolymer of ion exchange" is suggested to replace with "ion exchange copolymer"
  - the word hydrolyzed in claims 2, 3, 8, 9 is misspelled.
  - In claim 9 the word is missing between the words "monomer" and "from"
  - Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 2-5, 9, 10, 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The transitional word (i.e. between the preamble and the body of claim) "characterized and phrases incorporating it are common in applications of European origin. In U.S. practice claims containing those words and phrases are rejectable under 35 USC 112.2 when characterization may connote more than mere description (dictionary definition); in scientific parlance characterization may imply one or more physical steps or procedures (e.g. structure determination, elemental analysis, or qualitative tests) to identify a product. Since it is rare that applicant intends more than a mere description when using this language, physical steps are rarely disclosed. As such the reader may be unsure about the meaning of the wording of the claims, and additionally the scope of the claim is often unclear ("characterized conveys no degree of openness). Usually these troublesome words or phrases can be replaced by the standard transitional words, "having", "comprising", "wherein" and the like.

Claims 2, 3 recites "perfluorosulfide", however, the group  $\text{SO}_3\text{M}$  is perfluorosulfate.

Appropriate correction in claims and specification are required.

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The recited "consist or one or a mixture of..." as per claims 10 and 11 is indefinite, since the word "consists of" assumes only the elements recited, however, mixture of allows myriads of permutations from the recited solvents"

***Claim Rejections - 35 USC § 102***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1, 2, 4, 7, 8, 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Grot (U.S. 4,453,991).

Grot discloses a liquid composition of a perfluorinated ion exchange polymer having -- SO<sub>3</sub> M functional groups wherein M is H, Na, K or NR<sub>4</sub>, in a liquid medium, said liquid composition being liquid at room temperature, process of making a composition comprising contacting a said polymer having an equivalent weight in the range of 1025 to 1500 with a mixture comprising 20 to 90% by weight of water and 10 to 80% by weight of at least one member of the group consisting of methanol, ethanol, n-propanol, isopropanol, n-butanol, 2-butanol, 2-methoxyethanol, 2-ethoxyethanol, ethylene glycol dimethyl ether, ethylene glycol diethyl ether, diethylene glycol dimethyl ether, diethylene glycol diethyl ether, dioxane, acetonitrile and mixtures thereof. (col.2, lines 20-35, col.5, lines 5-17). Preferred polymers are listed in col.3, lines 50-65, and by

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generic formula in col.4, lines 15-25. Out of the solvents presented as preferable in Grot, the **ethylene glycol diethyl ether, diethylene glycol dimethyl ether, diethylene glycol diethyl ether, dioxane** (also col.19, lines 20-3) are non-polar solvents.

The above rejections were made in the sense of *In re Spada*, 911 F 2d 705, 709 15 USPQ 1655, 1658 (Fed. Cir. 1990), which settles that when the claimed compositions are not novel, they are not rendered patentable by recitation of properties, whether or not these properties are shown or suggested in prior art. Therefore, since the polymers of Grot are the same as claimed and are made essentially the same as those of the instant claims their crystallinity and ratio of densities in functionalized and non-functionalized forms will be inherently the same as claimed.

### ***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

13. Claims 3 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grot in view of JP 11-130743.

Grot does not specifically disclose the copolymer containing third monomer as instantly claimed. However, grot clearly suggests the polymers largely as described above but which contain, in addition to --SO<sub>3</sub> M functional groups, other functional groups in amount which do not interfere with formation of the desired liquid composition. Such other functional groups could be, for example, --SO<sub>2</sub> F groups which may have remained unhydrolyzed during conversion of precursor polymer having --SO<sub>2</sub> F groups to polymer having --SO<sub>3</sub> M groups. Such other functional group could also be, as another example, --COOQ functional groups where Q is H, lower alkyl of 1 to 4 carbon atoms, Na, K or NR<sub>4</sub>. In the case of terpolymers synthesized as described above but further including a fluorinated vinyl monomer having carboxylic functionality (see col.6, lines 59-68, col.7, lines 1-7)

JP'743 discloses ion exchange copolymer for making ion-exchange membranes comprising copolymers of perfluoroalkyl vinyl ether derivatives CF<sub>2</sub>=CF(OCF<sub>2</sub>CFY)<sub>n</sub>OCF<sub>2</sub>CF<sub>2</sub>SO<sub>3</sub>Na with fluorinated olefins. JP'743 emphasizes the availability and lower cost of perfluoroalkyl vinyl ether monomers. Therefore a person skilled in the art at the time the invention was made would have found obvious motivated by suggestion of Grot to introduce the third polymer as per JP'743 in order to impart desirable properties, and will thus arrive at the instant claims.

14. Claims 5, 6 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grot. Grot identifies both polar and non-polar solvents as a media for dissolution of

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ion exchange polymer. He does not specifically introduce fluorocontaining solvents as claimed nor does he specify the ratio of a polar and non-polar solvent.

However, a person skilled in the art would have found obvious to employ fluorocarbon solvents for the reason of a chief solubility rule that "like dissolves like", with the reasonable expectation that the fluorocarbon solvents that resemble the structural units of fluorocontaining polymer would provide better solubility and therefore homogeneity to the solution and thus will result in a membrane with improved characteristics.

With regard to the ratio of a polar and non-polar solvents, lacking showing criticality of the claimed ratio, a person skilled in the art would have found obvious via routine experimentation to adjust the amounts of polar and non-polar solvents in order to achieve optimum solubility and will thus arrive at the instantly claimed subject matter, Differences in concentration, or temperature will not support the patentability of a subject matter encompassed by the prior art unless there is an evidence indicating such concentration or temperature is critical.

Furthermore, wherein the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine optimization, *In re Aller*, 220 F.2d 454,456, 105 USPQ 233, 235 (CCPA 1955).

15. Other prior art cited in PTOL-892 shows the state of the art in ion-exchange polymers of similar structures for ion exchange membranes.



Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tatyana Zalukaeva whose telephone number is (571) 272-1303. The examiner can normally be reached on 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

February 25, 2004

Tatyana Zalukaeva  
Primary Examiner  
Art Unit 1713

